

CLAIMS

1. A panel carrying device which carries a panel,  
comprising:

5           a panel holding device which holds the panel;  
          a second link mechanism connected to the panel  
holding device;

          a first link mechanism pivotally fitted to the  
second link mechanism;

10           a slide mechanism which moves the first link  
mechanism in a panel carrying direction; and

          a swing mechanism which swings the second link  
mechanism.

15           2. The panel carrying device according to claim 1,  
wherein on opposite sides of the panel holding device, a  
pair of first link mechanisms, second link mechanisms,  
slide mechanisms and swing mechanisms are arranged  
symmetrically with respect to each other.

20           3. The panel carrying device according to claim 1,  
wherein the second link mechanism includes an output member  
connected to the panel holding device, an intermediate  
member constituting an opposite side of the output member  
25           and two arms connecting the output member to the  
intermediate member, which constitute a parallel link.

4. The panel carrying device according to claim 3, wherein the first link mechanism includes two arms connecting the intermediate member to the slide mechanism.

5           5. The panel carrying device according to claim 1, wherein the slide mechanism comprises: a feed slide into which the first link mechanism is pivotally fitted; and a translatable actuator which drives the feed slide in the carrying direction of the panel.

10           6. The panel carrying device according to claim 5, wherein the slide mechanism moves the feed slide in the carrying direction of the panel, while two arms of the first link mechanism are kept in parallel with each other.

15           7. The panel carrying device according to claim 5, wherein the slide mechanism individually drives two arms of the first link mechanism to move the feed slide in the carrying direction of the panel, and tilts the panel  
20 holding device.

          8. The panel carrying device according to claim 1, wherein the swing mechanism comprises: a swinging link mechanism pivotally fitted to the first link mechanism and  
25 the second link mechanism; and a translatable actuator which operates the swinging link mechanism.

9. The panel carrying device according to claim 8, wherein the translatory actuator of the swing mechanism drives a swing slide pivotally fitted to the swinging link mechanism in the carrying direction of the panel.

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10. The panel carrying device according to claim 5, wherein the translatory actuator of the slide mechanism and a translatory actuator of the swing mechanism are arranged.

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11. The panel carrying device according to claim 5, wherein the translatory actuator of the slide mechanism and a translatory actuator of the swing mechanism are a ball screw and a ball nut, timing belts, hydraulic cylinders, a rack and a pinion, or linear motors.

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12. The panel carrying device according to claim 8, wherein a translatory actuator of the slide mechanism and the translatory actuator of the swing mechanism are arranged.

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13. The panel carrying device according to claim 8, wherein a translatory actuator of the slide mechanism and the translatory actuator of the swing mechanism are a ball screw and a ball nut, timing belts, hydraulic cylinders, a rack and a pinion, or linear motors.

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14. The panel carrying device according to claim 1, wherein the panel holding device includes a cross bar connected to the second link mechanism, and a work holding tool attached to the cross bar.